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AUTHOR	Gibson, Dennis L.
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ABSTRACT

The Hill Interaction Matrix-G (HIM-G), a 72 item questionnaire, is a shorter method for the analysis of verbal interaction in small groups. Intended as a substitute for the more precise Hill Interaction Matrix Rating System (HIM-SS) this version can be rated within twenty minutes after observation of the group. A Fortran computer scoring program provides HIM cell scores and several parameters of the group's interaction. Scores across the 16 cells of the HIM-G correlate about 0.8 with the HIM-SS ratings. Test-retest and inter-judge reliabilities are in the 0.8-0.9 range. The HIM-G may be used for rough measures of group process and in studies of therapist style and group development. Minimal training of raters is necessary to achieve similar reliability. (Author/PR)

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The HIM-G as a rapid method for verbal interaction analysis in a small group.

by

Dennis L. Gibson

University of Minnesota

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Where to write for HIM materials:

Dr. William Fawcett Hill
Public Systems Research Institute
University of Southern California
University Park
Los Angeles, California 90007

TM000033

ABSTRACT

THE HIM-G AS A RAPID MEANS FOR GROUP INTERACTION ANALYSIS

The HIM-G is a short-cut method for global analysis of the verbal interaction in a small counseling or therapy group. It is a 72-item questionnaire which takes only about 20 minutes for a rater to complete after observing a session of a group. A FORTRAN computer scoring program for a completed HIM-G puts out HIM (Hill Interaction Matrix) cell scores, and several parameters of the group's interaction. The HIM-G appears useful for rough measures of group process. It may serve in studies of therapist style, or group development. Scores across the 16 cells of the HIM-G correlate about 0.8 with cell scores obtained by more tedious and precise statement-by-statement HIM ratings. Test-retest and inter-judge reliabilities are in the 0.8-0.9 range, among skilled raters. There are indications that even naive clerical personnel can achieve similar reliability with minimal instruction.

I. Description

The HIM-G is a 72-item questionnaire used to categorize the verbal interaction in a meeting of a small group. It is intended as a short-cut for the more detailed statement-by-statement Hill Interaction Matrix (HIM-SS) rating system. It takes only about 20 minutes to complete after hearing a group meeting. Psychologically unsophisticated persons can be trained to use the HIM-G.

II. Test-retest reliability (1 week or more)

A. Certified and sophisticated raters

1. Ph.D. psychologist (1 tape)

HIM-SS PPM r = 0.90

2. Ph.D. student (1 tape)

HIM-SS PPM r = 0.89

HIM-G PPM r = 0.81

Consensus = 0.8

B. Trained, sophisticated, not certified (Ed. Psy. 236 class, 1968)

		PPM		RHO	
	No. Raters	Median	Range	Median	Range
Easy Tape	7	.84	.18 to .95	.80	.22 to .96
Hard Tape	6	.81	.21 to .93	.84	.43 to .91

Consensus = 0.8

C. Not trained, sophisticated, not certified (Ed. Psy. 200 class, 1968)

		PPM		RHO	
	No. Raters	Median	Range	Median	Range
Easy Tape	5	.88	.71 to .91	.83	.60 to .89
Hard Tape	4	.84	.51 to .94	.92	.52 to .92

Consensus = 0.8

D. Not trained, not sophisticated, not certified (CYC leaders. Received HIM theory session between first and second hearings)

		PPM		RHO	
	No. Raters	Median	Range	Median	Range
Unknown Tape	9	.89	.66 to . 98	.83	.65 to .90

Consensus = 0.8

III. Inter-rater reliability (all correlations here are Spearman rank-order with D.F. = 14)

A. Two certified raters, one sophisticated, one not sophisticated (one tape rated 3 times)

	Feb.	April	May
HIM-SS	.88	.75	.81
HIM-G	.63	.80	.82

Consensus = .8

B. Trained, Sophisticated, not certified (Ed. Psy. 236 class)

				RHO		
Group	Hearing	Tape	No. Raters	Median	Min.	Max.
1968	First	Easy	7	.59	.19	.91
	Second	Easy	7	.63	.17	.93
1968	First	Hard	6	.55	.16	.77
	Second	Hard	6	.52	.28	.73
1969	First	Unknown	24	.76	.47	.96
	Second	Unknown	24	.80	.45	.99

Consensus = .7

C. Trained, not sophisticated, not certified (CYC leaders)

			RHO	
Hearing	Tape	No. Raters	Median	Range
First	Unknown	10	.77	.32 to .95
Second	Unknown	10	.74	.46 to .93

Consensus = 0.7

D. Not trained, sophisticated, not certified (Ed. Psy. 200 class, 1968)

Hearing	Tape	No. Raters	RHO Median	RHO Range
First	Easy	6	.60	.32 to .83
Second	Easy	5	.70	.42 to .87
First	Hard	4	.48	-.27 to .70
Second	Hard	5	.44	.17 to .80

Consensus = .6

E. Participants rating their own groups. (Four groups at a weekend Human Relations Training Laboratory composed of public school administrators and counselors. All had a 15-minute HIM theory session before the group meetings which they rated on the HIM-G).

Group	No. Raters	RHO Median	RHO Range
1	12	.65	.10 to .92
2	12	.70	.27 to .95
3	10	.70	-.18 to .87
4	12	.66	.31 to .93

Consensus = 0.7

IV. Internal consistency reliability (Hoyt reliability coefficients. Cell scores have $\frac{4}{4}$ items each; marginals 16 to 64 items)

A. Certified and sophisticated

	Median Cell	Median Marginal
1 Ph.D. student on 23 tapes	.87	.79

Consensus = 0.8

B. Trained, sophisticated, not certified (Ed. Psy. 236 class, 1969)

Hearing	Tape	No. Raters	Median Cell	Median Marginal
First	Unknown	24	.73	.87
Second	Unknown	24	.74	.86

Consensus = 0.8

C. Not trained, not sophisticated, not certified. (CYC leaders. Received HIM theory session between first and second hearing)

Hearing	Tape	No. Raters	Median Cell	Median Marginal
First	Unknown	10	.59	.78
Second	Unknown	10	.64	.81

Consensus = 0.7

V. Validity (correlation of HIM-G with HIM-SS)

A. Certified, sophisticated

1. Ph.D. student on 23 tapes

PPM		RHO	
Median	Range	Median	Range
.83	.19 to .92	.82	.48 to .95

2. PH.D. student 3 times on one tape

RHO		
Feb.	April	May
.91	.93	.95

Consensus = 0.8

B. Certified, not sophisticated (HIM-trained and certified secretary; 3 times on same tape as PH.D. student above)

RHO		
Feb.	April	May
.41	.71	.84

Consensus = 0.7

C. Maximum possible validity

Assume HIM-G reliability = 0.8

Assume HIM-SS reliability = 0.8

Then, $(r_{G \cdot S})max = \sqrt{0.8 \times 0.8} = \underline{\underline{0.8}}$

Conclusions

1. The HIM-G is an adequate substitute for the HIM-SS for most analyses of group interaction.
2. With fairly simple training (like maybe eight hours), some unsophisticated persons can be trained to use the HIM-G with acceptable reliability (say 0.7 or above).
3. Reliability and validity figures around 0.8 have been repeatedly obtained by trained raters.
4. Some tape-recorded group meetings are rated with substantially lower reliability and validity than are others. "Easy" tapes run .7 to .9. "Hard" tapes run 0.4 to 0.5.
5. The observed correlation of HIM-G with HIM-SS scores is as high as the reliability of either instrument allows, about 0.8.
6. Reliability and validity increase with experience at rating.

*** IDENTIFICATION NUMBER= TAPEYK-1 ***

******** HILL INTERACTION MATRIX (HIM-G) SCORES AND NORMS ********

DATE SCORED WAS 07/07/70

CELL SEQUENCE BELOW IS --- TS TM MP MF

	TOPIC I	GROUP II	PERSONAL III	RELNSHIP IV	RAW SCORE	PERCENT	NORM	TH/M RATIO	MP/MF RATIO
CONVENTIONAL-B	0031 = 4	1231 = 7	2143 =10	1141 = 7	28	.459	+	.400	2.333
ASSERTIVE-C	0001 = 1	0000 = 0	0111 = 3	0000 = 0	4	.066	0	.333	.500
SPECULATIVE-D	2244 =12	1242 = 9	0111 = 3	1000 = 1	25	.410	0	.563	1.286
CONFRONTIVE-E	1111 = 4	0000 = 0	0000 = 0	0000 = 0	4	.066	0	1.000	1.000
RAW SCORE	21	16	16	8					
PERCENT	.344	.262	.262	.131					
NORM	+	+	-	0					
TH/M RATIO	.400	.600	.455	.600					
MP/MF RATIO	1.143	2.333	1.200	4.000					
RESPONSIVE-A	0	0	1	0					
NON-SPECIFIC-A	0	0	2						

TOTAL RAW SCORE IN A = 3

TOTAL PERCENT IN A = .086 (3 OF POSSIBLE 35)

TH PART = 20-40 0/0

RATED LEADER TIME = 1.250

RATED MEMBER TIME = 1.300

CELL WEIGHTS

	I	II	III	IV
B	1	2	9	10
C	3	4	11	12
D	5	6	13	14
E	7	8	15	16

****
* TOTAL SCORE= 61 *
****

TOTAL TH/M RATIO= .488

RISK RATIO= .151

INTRA-GRP RATIO= .649

TOTAL MP/MF RATIO= 1.563

WORK RATIO= .906

MEMBER RATIO= .649

THERAPEUTIC VALUE INDEX= 6.705

QUADRANT ANALYSIS

QUAD 1		QUAD 3	
RAW SCORE =	12	RAW SCORE =	20
PERCENT =	.197	PERCENT =	.328
NORM =	0	NORM =	0
TH/M RATIO =	.333	TH/M RATIO =	.429
MP/MF RATIO =	2.000	MP/MF RATIO =	1.800
RISK RATIO =	.091	RISK RATIO =	.176
QUAD 2		**QUAD 4**	
RAW SCORE =	25	RAW SCORE =	4
PERCENT =	.410	PERCENT =	.066
NORM =	+	NORM =	-
TH/M RATIO =	.563	TH/M RATIO =	1.000
MP/MF RATIO =	1.286	MP/MF RATIO =	1.000
RISK RATIO =	.190	RISK RATIO =	0.000

Dennis L. Gibson
2/26/70

INTERPRETING THE HIM-G PROFILE

The Hill Interaction Matrix (HIM) categorizes a person's talk in two ways; first, what he talks about, and second, how he talks about it. A person filling out the HIM-G on a group meeting he has observed is telling what the group talked about, and how, etc.

The "What" dimension is shown by Roman numerals. The safest thing a group can talk about is I, a topic of general interest, like the weather, politics, psychology, etc. Next, they can talk about the group itself (II). Next, they can participate in conversation that focuses on one present group member who is topic person. Such conversation is called Personal (III). The most risky thing to talk about, from the standpoint of vulnerability to embarrassment in the group, is IV, a Relationship in the here-and-now, between two or more persons in the group. The way the group talks, the "How" dimension, is shown by B, C, D, and E. Moving down on this dimension indicates an openness to changing one's opinions, attitudes, and characteristic behavior. Changes like that require effort, so this "How" dimension is a "work" scale. The least effortful way to talk is B, Conventional. This is routine socializing, small talk, and where-are-you-from information-seeking. It takes only a little more effort to be Assertive (C). This is how a person talks when he argues, gripes, blows off steam, tells someone off, or tries to persuade. At neither B nor C is he willing to change anything about himself. One begins to be open to change when he begins to think about it. This thoughtfulness is reflected in D, the Speculative way of talking. The confrontive style, E, is the hardest work. It involves honesty, insight, taking responsibility for what is said by using specific examples, and getting down to the real core of the issue at hand.

On the HIM-G print-out, the "What" and "How" dimensions intersect to form 16 cells. The highest score possible in any cell is 20, and the highest possible sum for any column or row is 80. Each column and row score is converted to a percentage of the total raw score. These percentages are compared against many other groups to see how this one stacks up. In the places labeled "NORM", a zero means this group talked about that subject (for the norms under each column) or in that manner (for the norms at the end of each row) about as much as the average group. A minus means that this group interacted in that style less than do most groups. A plus sign indicates their use of that style was greater than average.

Each cell on the print-out contains a four-digit number. It is this four-digit number that is referred to by the statement "cell sequence below is----TS TM MP MF." The first digit indicates Therapist Sponsoring activity, the second is for Therapist Maintaining, the third for number of Members Participating, and the fourth for Member Frequency. Each of the 16 cell scores shown after the "=" sign is the sum of four individual scores. Three of these (TS, TM and MF) ask about percent of time spent, while the fourth (MP) asks about numbers of members engaging in that activity.

The ratio of therapist to member talk is given by the TH/M ratio for each column and row, and overall, (TH=TS+TM and M=MP+MF for each cell). TH/M ratio is a measure of therapist activity. Norms are not yet available, but a ratio over 1.0 suggests that most of that type of interaction came from the therapist rather than the members. A rather inactive therapist might get TH/M ratios around 0.2.

Th MP/MF ratio indicates how widely distributed the member participation was. A ratio much below 1.0 indicates that one or two members did virtually all the talking that went on in that style. For example, if one member monopolized 50% of the group's time griping in the assertive style about some topic (i.e. Cell IC), and no other assertive talk occured, the MP/MF ratio for row C would be 0.25. On the other hand, if five or six members socialized 5 to 10 % of the time, row B would get an MP/MF ratio of 4.0. A total MP/MF ratio of about 1.0 indicates well-balanced participation. Below 1.0 indicates over-participation by one member.

The Risk Ratio is the sum of the row totals for C and E, divided by B and D. That is, (C+E) (B+D). The higher this number is, the more the group participants risked being put down, contradicted, embarrassed, or rejected. Norms are not available and 1.0 is not a magic number for Risk Ratio, or for the ratios discussed later. But, as a rule of thumb, 0.2 would be about normal, 0.6 would be quite high, and below 0.1 would be low. (Let me express the personal clinical judgment that most effective non-hospitalized groups, after their first few sessions ought to have Risk Ratios around 0.7. Getting much above 1.0 might not allow enough release of the tension generated by prolonged confrontive interaction.)

The Intra-Group Ratio is calculated by (II + IV) / (I + III). It reflects talk about the group and about relationships among members, rather than talk about either general interest topics, or individual group members. A group conducted as a group dynamics learning experience would probably get a high Intra-Group Ratio (like about 2.0 or above). On the other hand, a therapy or counseling group conducted primarily for the members to increase their self understanding or to solve their personal problems would score low (like about 0.7 or below).

The Work Ratio is calculated by (D+E) / (B+C). It measures the amount of openness the participants exhibited where "openness" means the offering and accepting of helpful influence on each other. A group with a high Work Ratio (say above about 3.0) gets down to business more than the average group does. A low Work Ratio (like below about 1.0) is avoiding talking in a way that might require members to change their characteristic behavior.

Member Ratio is (III + IV) / (I+II). It indicates the amount of talk about individuals in the group and their relationships with each other, relative to the amount of less interpersonal talk. A therapeutically-functioning group should have a Member Ratio of about 2.0 or above. A therapy group that is failing to be therapeutic would be indicated by a ratio below about 0.7 . A group dynamics training group would probably run 1.0 or below on Member Ratio.

The Therapeutic Value Index (TVI) is the mean weighted cell score. Hill has assigned ranks to the 16 cells of the HIM, based on their theoretical potential for promoting self-understanding which may lead to beneficial behavior changes on the part of the group members. These weights are shown at the lower left of the print-out. The TVI is calculated by multiplying each cell score by that cell's weight, then summing these products across all 16 cells, and dividing by the total score (shown in the box).

Norms are not available on the TVI, nor is its interpretation clear. In general, though, an effective group meeting should score above about 8, and perhaps even as high as about 12. Scores much below 8 indicate that not much therapy was being accomplished in that meeting. Low TVI scores would be appropriate and even desirable in the early sessions of almost any group, and probably most sessions of a therapy group for regressed mental patients who must be encouraged to socialize at all. Incidentally, this same comment about appropriateness of low scores applies also to Risk Ratio and Work Ratio.

The total percentage of group time occurpied by therapist talk is given by TH PART. The median of many therapy groups was between 10 and 20 %.

The numbers shown after Rated Leader Time and Rated Member Time indicate that total proportion of group time that this HIM-G rater accounted for. Typically, both these numbers run over 1.0 (often around 2 to 3). The meaning of this excess is probably that the HIM-G rating procedure fosters overestimation of the time spent in each type of interaction. As a rater becomes more skilled in using the HIM-G, these rated time figures should drop to between 1.0 and 2.0. A pending revision of the HIM-G should also allow finer discriminations at the low end of the participation scales, where a lot of the overestimation occurs.

The Quadrant Analysis is simply a condensed way of looking at the more detailed information already discussed. If the 4 by 4 matrix is split in half vertically, then again horizontally, each quadrant emerges as a cluster of four cells. The parameters indicated for each quadrant have the same interpretation as given earlier.